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Utah Ozone Fact Sheet

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What is it?

Ozone is formed when hydrocarbons and nitrogen oxides react chemically in the presence of sunlight and heat. Hydrocarbons are emitted from automobiles, gasoline stations, paint, degreasers, cleaning fluids, and many other sources. Plants also give off some reactive hydrocarbons, such as terpenes from pine trees. Nitrogen oxides are emitted by automobiles, power plants, and other combustion processes.

Why is Ozone important?

Ozone can irritate the respiratory system, causing coughing, throat irritation, and/or an uncomfortable sensation in the chest. It can lower your resistance to diseases such as colds and pneumonia. Those who are most sensitive to its impacts are the very young, the elderly, and those with pre-existing breathing problems. People with respiratory diseases whose lungs are more vulnerable to ozone may experience health effects earlier and at lower ozone levels than less sensitive individuals. Ozone also makes people more sensitive to allergens, the most common triggers of asthma attacks. Even healthy adults doing heavy exercise or manual labor outdoors may experience unhealthy effects during high ozone periods. This is because during physical activity, ozone penetrates deeper into the parts of the lungs that are more vulnerable to injury.

Studies have shown that ozone can inflame and damage the lining of the lungs. Within a few days, the damaged cells are shed and replaced - much like the skin peels after a sunburn. However, if this type of inflammation happens repeatedly over a long time period, lung tissue may become permanently scarred, resulting in less lung elasticity, permanent loss of lung function, and a lower quality of life.

Ozone in Utah

Ozone production is a year-round phenomenon. However, the highest ozone levels occur during the summer when strong sunlight, high temperatures, and stagnant meteorological conditions combine to drive the chemical reactions and trap the air in the region for several days. Ozone produced under these conditions can then be transported many miles outside the urban formation area.

Why are we talking about Ozone now?

Ozone is one of six "criteria pollutants" identified in the Clean Air Act. As such, the EPA is obligated to establish federal health standards and ensure that the ambient air we all breathe is within these standards. The Act also requires that EPA periodically re-evaluate the standards it has set and revise them if necessary.

Utah has been in attainment of the federal ozone standard since the early 1990's. In early March of 2008, the EPA tightened the ozone standard to 0.075 ppm (averaged over eight hours). This action has placed several counties in Utah located along the Wasatch Front in jeopardy of

being designated nonattainment. Utah has analyzed certified monitored ozone data from 2006 – 2008 to determine specifically which areas need to be designated nonattainment of the 0.075 ppm (parts per million) standard. On March 10, 2009 the State submitted a recommendation to the EPA.

On September 16, 2009, the EPA announced it would reconsider its 2008 decision setting national standards for ground-level ozone. EPA is reconsidering the standards to ensure they are clearly grounded in science, protect public health with an adequate margin of safety, and are sufficient to protect the environment. The reconsideration will be based on the scientific and technical record used in the March 2008 review, which included more than 1,700 scientific studies, and is due out in late 2009 or early 2010.

In the table on the following page, numbers in Red indicate that the 3-year-average would violate the current ozone standard of 0.075 ppb (parts per billion). Numbers in Orange would exceed a new standard of 0.070 ppb. Utah will base recommendations for attainment status for the new ozone standard based on 2007-2009 data.

4th High 24 hr Max 8 hr Averages	3 year Average	
Site_ID	2006-2008	2007-2009
BR Brigham City	0.075	0.072
L4 Logan #4	0.071	0.067
BV Bountiful Viewmont	0.081	0.077
CW Cottonwood	0.082	0.078
B4 Beach #4 (Saltair Marina)	0.079	0.077
HW Hawthorne	0.079	0.076
T3 Tooele	0.075	0.072
NP North Provo	0.074	0.073
HG Highland	0.075	0.073
SF Spanish Fork	0.075	0.073
SC Santa Clara		0.064
O2 Ogden #2		0.072
HV Harrisville	0.080	0.076
Canyonlands, UT	0.071	0.071
Zion, UT	0.072	0.070
Grand Canyon, AZ	0.069	0.068
Mesa Verde, CO	0.071	0.070
Craters of the Moon, ID		0.063
Great Basin, NV	0.073	0.072
Yellowstone, WY	0.066	0.063
Current Standard	0.075	0.075
New Standard under consideration	0.070	0.070

Utah's recommended non-attainment areas under the 2008 revised ozone standard